What is claimed is:

1. A prodrug of an analgesic drug wherein the prodrug has a lower binding affinity to a μ opioid receptor than the analgesic drug.

2. A method for lowering the abuse potential and/or extending the duration of action of an analgesic drug that binds to a μ opioid receptor comprising converting the analgesic drug, prior to formulation, to a prodrug wherein the prodrug is has a lower binding affinity to the μ opioid receptor than the drug.

3. A method for lowering the abuse potential of an opioid analgesic drug and/or extending its duration of action by converting it, prior to formulation, to an ester prodrug wherein the prodrug is less well absorbed into the blood and/or less accessible to the target tissue than is the drug after oral, or subcutaneous, or intramuscular, or transdermal administration to a mammal, and wherein the duration of the effect of the drug in a mammal is substantially determined by the rate of conversion of the prodrug to drug.

4. A method for lowering the abuse potential of an opioid analgesic drug and/or extending its duration of action by converting it, prior to formulation, to an ester prodrug wherein the prodrug is less well absorbed into the blood and/or less accessible to the target tissue than is the drug after oral administration to a mammal, and wherein the duration of the effect of the drug in a mammal is substantially determined by the rate of conversion of the prodrug to drug.

5. A method for lowering the abuse potential of an opioid analgesic drug and/or extending its duration of action by converting it, prior to formulation, to an ester prodrug wherein the prodrug is less accessible to the target tissue than is the drug after parenteral administration to a mammal, and wherein the duration of the effect of the drug in a mammal is substantially determined by the rate of conversion of the prodrug to drug.

6. A method for lowering the abuse potential of an opioid analgesic drug and/or extending its duration of action by converting it, prior to formulation, to an ester prodrug wherein less than 30% of an oral, or subcutaneous, or intravenous, or intramuscular, or topical dose of the prodrug enters the central nervous system, and wherein the duration of the effect of the drug in a mammal is substantially determined by the rate of conversion of the prodrug to drug.

7. A prodrug of claim 4 that is poorly absorbed from the digestive tract with less than 30% of an oral dose of the prodrug appearing in the blood.

8. A prodrug of claim 4 that reacts in the digestive tract to form, via nonenzymatically and/or enzymatically catalyzed reactions, an analgesic agent that enters the CNS after absorption from the digestive tract.

9. A prodrug of claim 4 that reacts in the digestive tract to form, primarily via nonenzymatically catalyzed reactions, an analgesic agent that enters the CNS after absorption from the digestive tract.

10. A prodrug of claim 4 wherein conversion of prodrug to drug after administration occurs primarily in the digestive tract with a half-life of 3-48 hours so as to yield sustained analgesia.

11. A prodrug of claim 4 wherein conversion of prodrug to drug after administration occurs primarily in the digestive tract with a half-life of 3-72 hours so as to yield sustained analgesia.

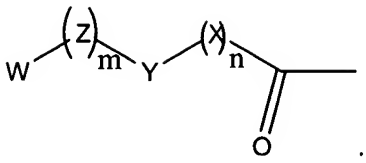
12. A prodrugs of claim 5 wherein conversion of prodrug to drug after administration occurs with a half-life of 3-720 hours so as to yield sustained analgesia.

13. A tablet or capsule formulation of a prodrug of claim 1 that contains a sufficient amount of a thickening agent such as hydroxypropylmethylcellulose, or carboxymethylcellulose, or methylcellulose or mixtures thereof to impede intravenous or nasal administration of drugs produced by hydrolytic processing of prodrug tablets or capsules.

14. A method for impeding abusive intravenous administration of a drug or prodrug wherein a sufficient amount of a thickening agent such as methylcellulose or hydroxypropylmethylcellulose, or carboxymethylcellulose, or mixtures thereof is added to a formulation of a drug or prodrug so as produce a viscosity of greater than about 1,000 centipoise, when a unit dose of the drug or prodrug is extracted with 10 ml of an aqueous vehicle suitable for intravenous administration.

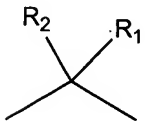
15. Prodrugs of claim 3 wherein the parent drug contains one or more hydroxyl groups derived from an alkyl or cycloalkyl alcohol and/or phenol and/or enol in equilibrium with a ketone or aldehyde group.

16. A prodrug of claim 3 containing one or more carboxylic ester linkages to the drug wherein the acyl portion of the ester linkages has the following structure



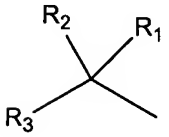
wherein the values of m and n are independently selected from the values 0, 1, 2 or 3.

Z and X are independently selected from



and W is selected from

R_1.



wherein, R_1, R_2, and R_3 are independently selected from

hydrogen.

C_{1-4} alkyl unsubstituted or substituted with CH_3 or C_{3-7} cycloalkyl, or amino or guanidino or amidino or carboxy or acetamido or carbamyl or sulfonate, phosphate or phosphonate.

C_{1-4} alkoxy.

methylenedioxy.

hydroxy.

carboxy.

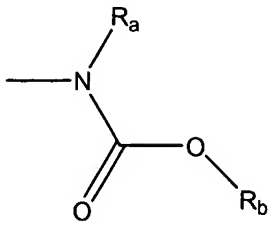
Sulfonate..

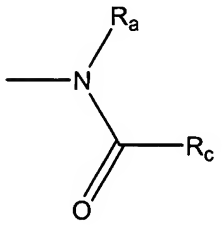
C_{3-7} cycloalkyl.

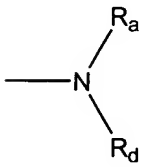
aryl unsubstituted or substituted with guanidino or amidino or carboxy or acetamido or carbamyl or sulfonate, phosphate or phosphonate.

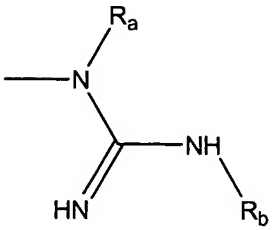
benzyl with the benzene ring unsubstituted or substituted with guanidino or amidino or carboxy or acetamido or carbamyl or sulfonate, phosphate or phosphonate.

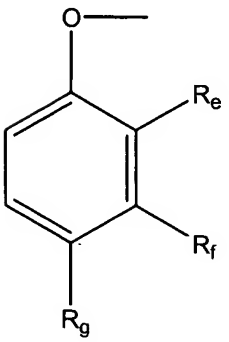
R_1 and R_2 along with the carbon or carbon atoms to which they are attached form a C_{3-7} cycloalkyl ring.

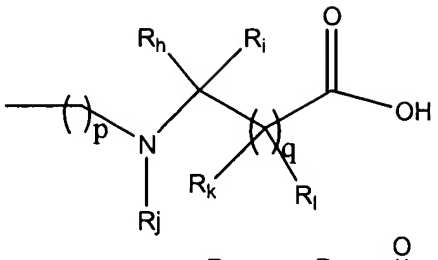


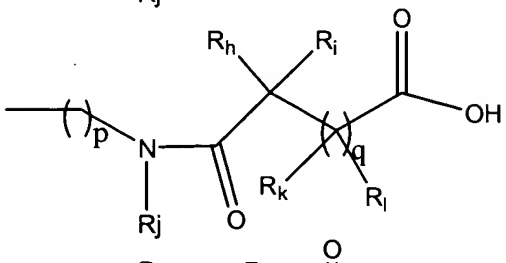


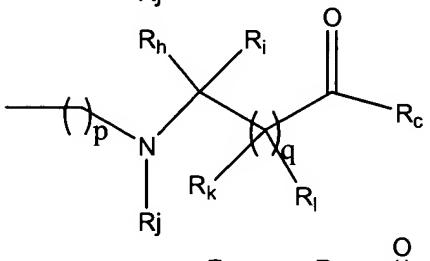


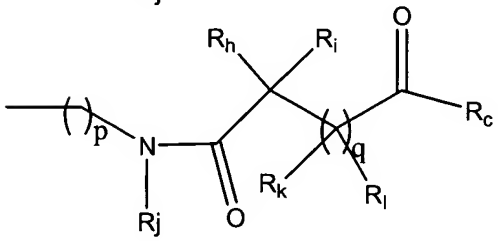


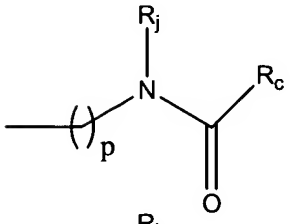


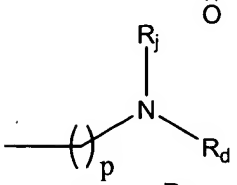


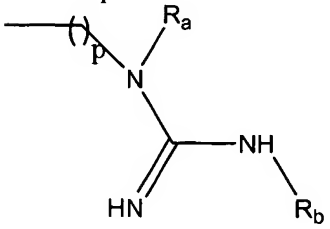


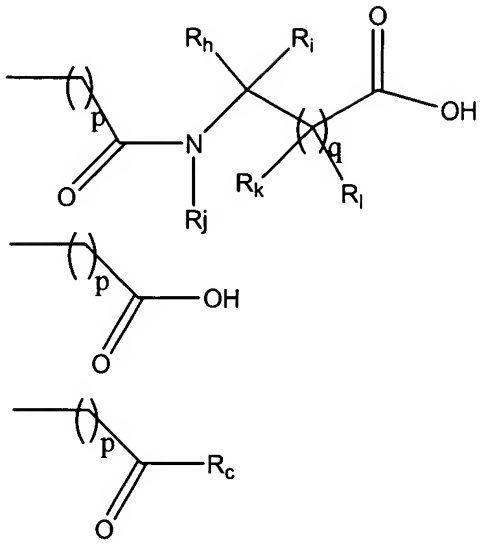




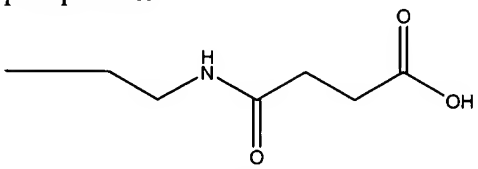








wherein R_a and R_b are independently selected from
hydrogen.
C_{1-4} alkyl unsubstituted or substituted with CH_3 or C_{3-7} cycloalkyl.
C_{3-7} cycloalkyl.
aryl unsubstituted or substituted with guanidino or amidino or carboxy or acetamido or carbamyl or sulfonate, phosphate or phosphonate.
benzyl with the benzene ring unsubstituted or substituted with guanidino or amidino or carboxy or acetamido or carbamyl or sulfonate, phosphate or phosphonate.



wherein R_c is selected from
hydrogen.
C_{1-4} alkyl unsubstituted or substituted with CH_3 or C_{3-7} cycloalkyl, or amino or guanidino or amidino or carboxy or acetamido or carbamyl or sulfonate, phosphate or phosphonate.
aryl unsubstituted or substituted with guanidino or amidino or carboxy or acetamido or carbamyl or sulfonate, phosphate or phosphonate.
benzyl with the benzene ring unsubstituted or substituted with guanidino or amidino or carboxy or acetamido or carbamyl or sulfonate, phosphate or phosphonate.
cellulose or a cellulose derivative such as methyl cellulose, hydroxyethylcellulose or hydroxypropylcellulose such that one or more

hydroxyl groups in the cellulose or cellulose derivative forms an ester or urethane linkage in the prodrug.

poly(ethylene glycol) or a poly(ethylene glycol) derivative such as poly(ethylene glycol) methyl ether, poly(ethylene glycol) ethyl ether, poly(ethylene glycol) carboxymethyl ether, poly(ethylene glycol) monolaurate such that one or more of the hydroxyl groups of the poly(ethylene glycol) or the poly(ethylene glycol) derivative form an ester or urethane linkage in the prodrug.

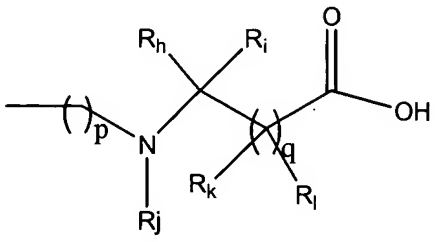
wherein R_d is is selected from

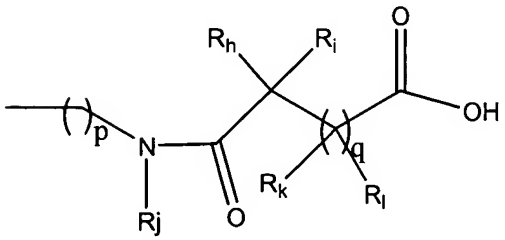
a polycarboxylic acid such as carboxymethylcellulose or a derivative thereof, polyacrylic acid or a derivative thereof, polymethacrylic acid or a derivative thereof such that one or more of the carboxyl groups of the macromolecule forms an amide linkage in the prodrug.

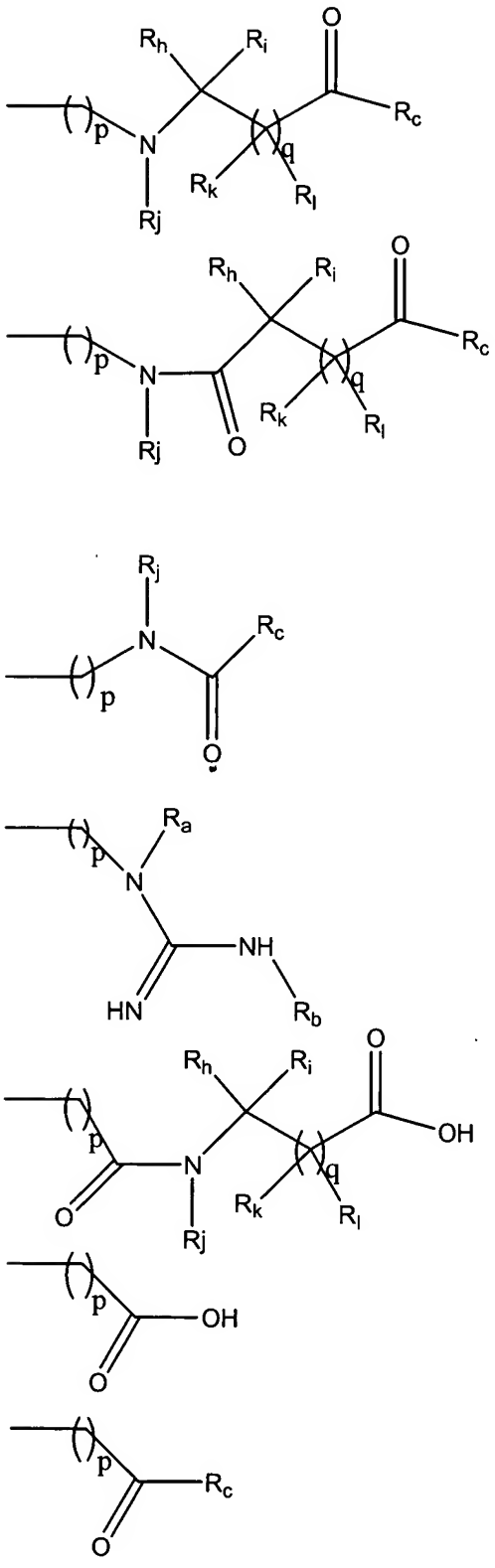
poly(ethylene glycol) bis(carboxymethyl) ether, or poly(ethylene glycol) carboxymethyl, methyl ether or similar carboxylic acid containing poly(ethylene glycol) derivative such that one or more carboxyl groups of the poly(ethylene glycol) derivative forms an amide linkage in the prodrug.

wherein R_e, R_f and R_g are independently selected from

hydrogen.





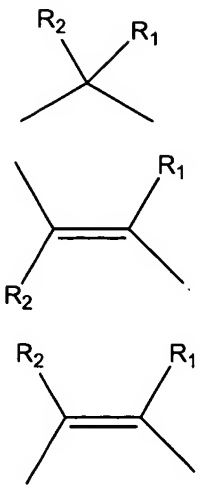


wherein the values of p, and q are independently selected from the values 0, 1, 2, or 3

wherein R_h, R_i, R_k and R_l are independently selected from
hydrogen.
C_{1-4} alkyl unsubstituted or substituted with CH_3 or C_{3-7} cycloalkyl, or amino or guanidino or amidino or carboxy or acetamido or carbamyl or sulfonate, phosphate or phosphonate.
aryl unsubstituted or substituted with a guanidino or amidino or carboxy or acetamido or carbamyl or sulfonate, phosphate or phosphonate.
benzyl with the benzene ring unsubstituted or substituted with a guanidino or amidino or carboxy or acetamido or carbamyl or sulfonate, phosphate or phosphonate R_h and R_i along with the carbon to which they are attached form a C_{3-7} alkyl ring.
R_k and R_l along with the carbon to which they are attached form a C_{3-7} alkyl ring,

wherein R_j is selected from
hydrogen.
C_{1-4} alkyl unsubstituted or substituted with CH_3 or C_{3-7} cycloalkyl.
C_{3-7} cycloalkyl.
Aryl unsubstituted or substituted with a carboxyl or guanidino or amidino or carboxy or acetamido or carbamyl or sulfonate, phosphate or phosphonate.
benzyl with the benzene ring unsubstituted or substituted with a guanidino or amidino or carboxy or acetamido or carbamyl or sulfonate, phosphate or phosphonate.
a polycarboxylic acid such as carboxymethylcellulose or a derivative thereof, polyacrylic acid or a derivative thereof, polymethacrylic acid or a derivative thereof such that one or more carboxyl groups in the macromolecule form an amide linkage in the prodrug.
poly(ethylene glycol) bis(carboxymethyl) ether, or poly(ethylene glycol) carboxymethyl, methyl ether or similar carboxylic acid containing poly(ethylene glycol) derivative such that one or more carboxyl groups of the poly(ethylene glycol) derivative forms an amide linkage in the prodrug.

Y is independently selected from the following



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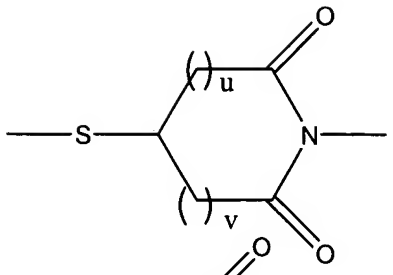
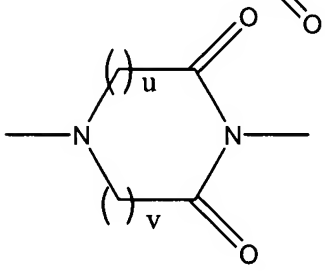
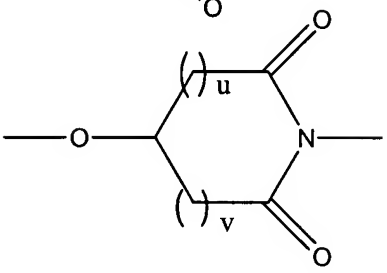
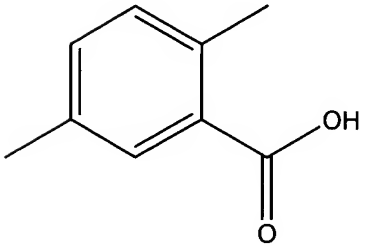
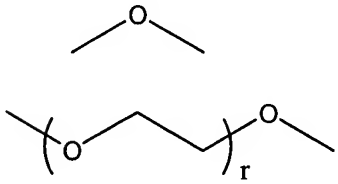
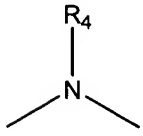










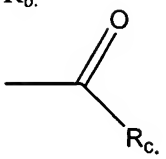


wherein the values of u and v are independently selected from the values 0, 1, 2 or 3, and the value of r is a value between 10 and 1,000.

wherein R_4 is independently selected from

R_a.

R_b.

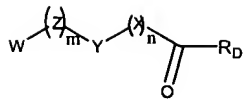


R_d.

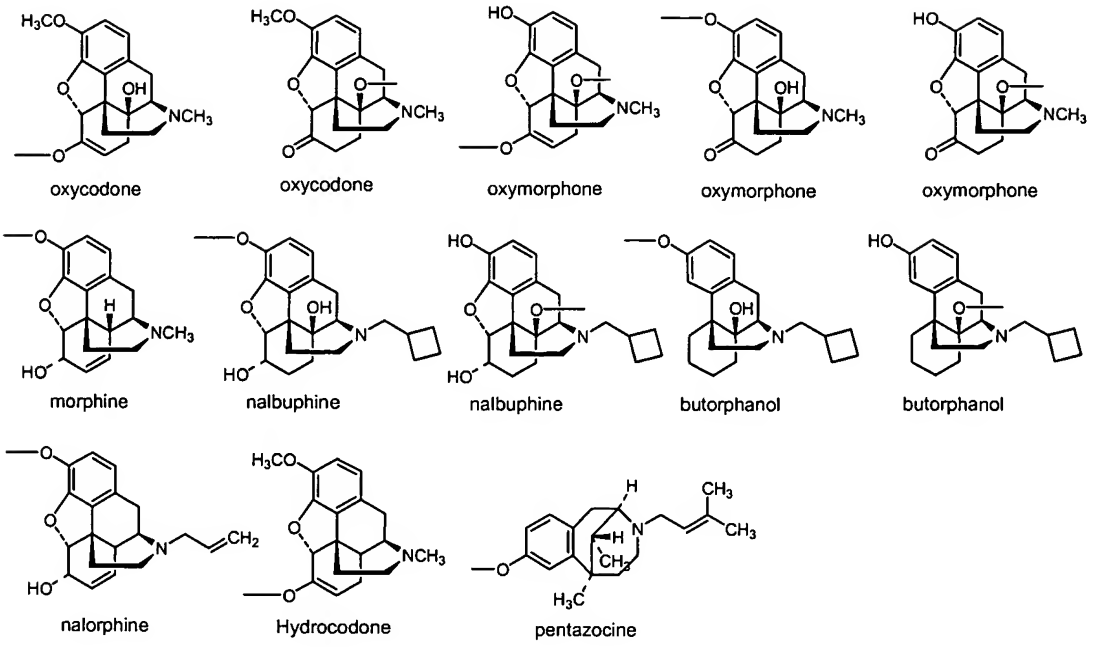
The compounds of this claim may have chiral centers and may occur as epimeric mixtures, diastereomers, and enantiomers. All such stereoisomers are included in this claim. When any variable occurs repeatedly in the formulae, the definition of that variable is independent of its definition at every other occurrence of that variable. Additionally, combinations of variables and substituents are permissible only when they produce stable compounds.

17. A prodrug of claim 16 wherein the parent drug is oxycodone, or hydrocodone or oxymorphone or butorphanol or morphine or nalbuphine or nalorphine or pentazocine or pharmaceutically acceptable salt thereof.

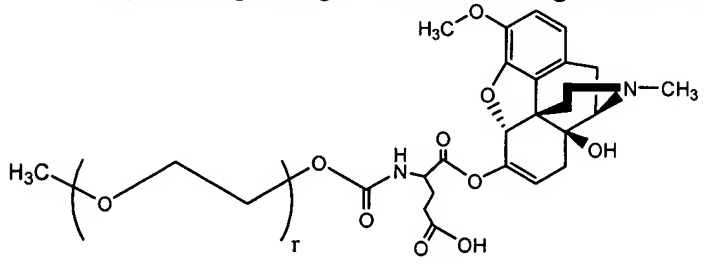
18. A prodrug of claim 16 or a pharmaceutically acceptable salt thereof selected from the following structures



where -R_D is selected from the following moities



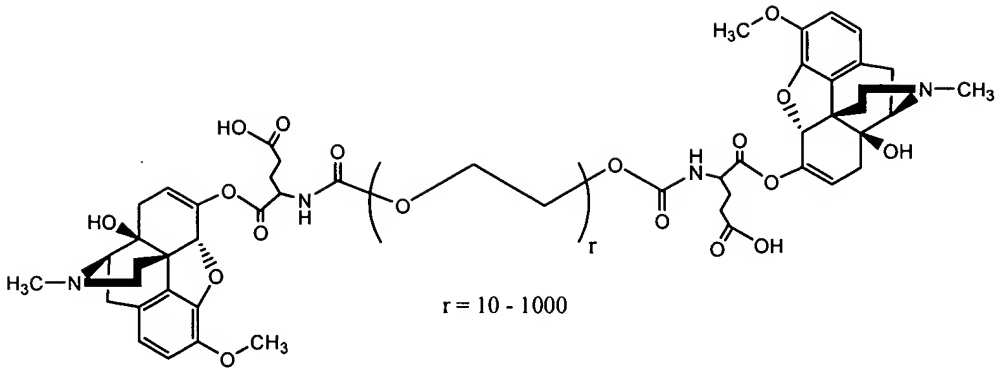
19. An oxycodone prodrug of claim 16 having the structure



r = 10 - 1000

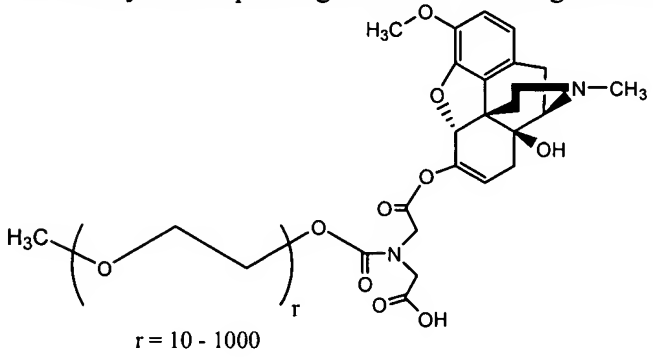
or a pharmaceutically acceptable salt therof.

20. An oxycodone prodrug having the structure



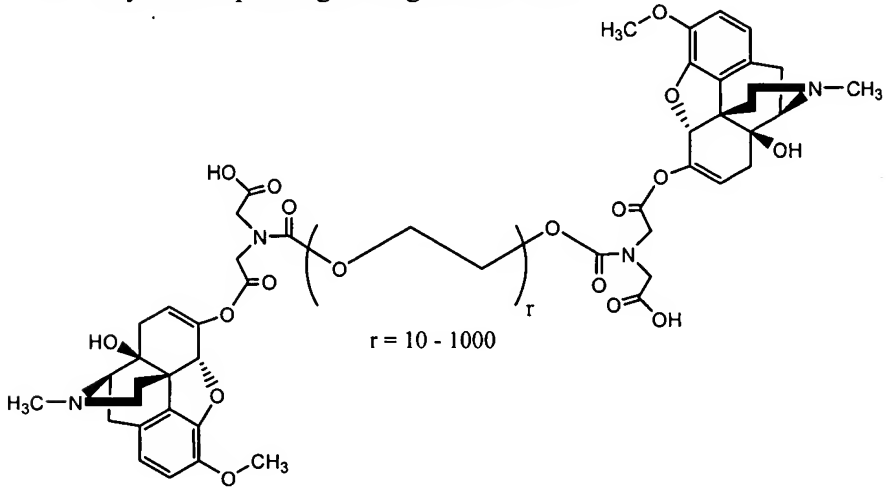
or a pharmaceutically acceptable salt therof.

21. An oxycodone prodrug of claim 16 having the structure



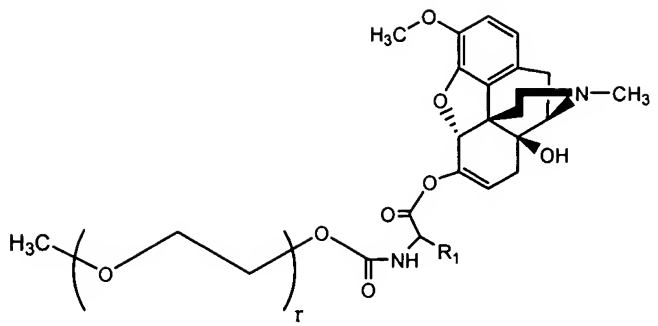
or a pharmaceutically acceptable salt therof.

22. An oxycodone prodrug having the structure



or a pharmaceutically acceptable salt thereof.

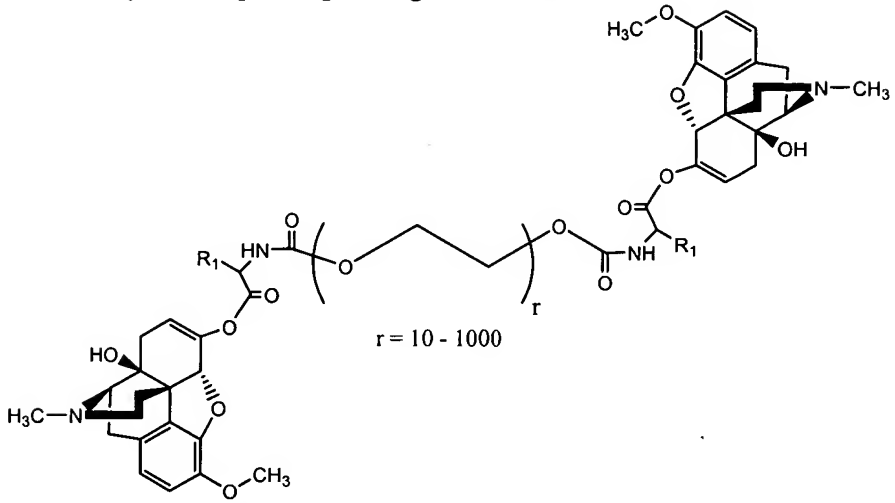
23. An oxycodone prodrug of claim 16 having the structure



r = 10 - 1000

or a pharmaceutically acceptable salt thereof

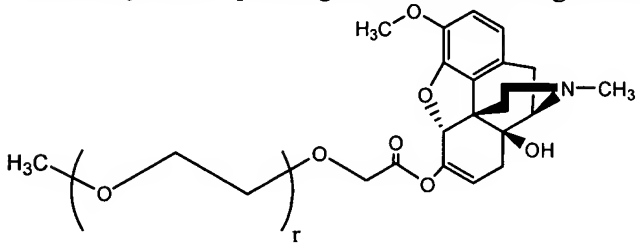
24. An oxycodone prodrug having the structure



r = 10 - 1000

or a pharmaceutically acceptable salt thereof.

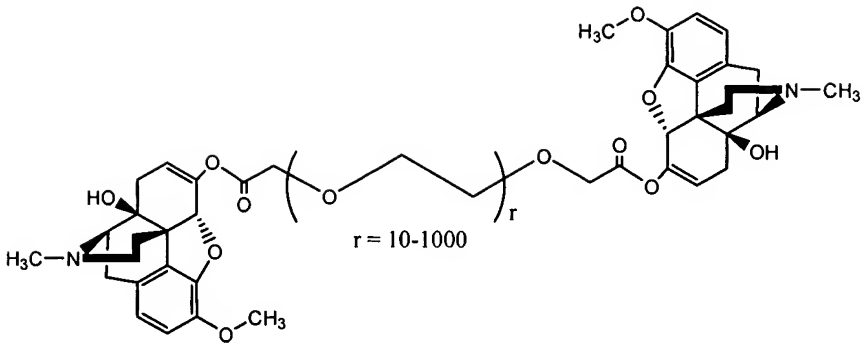
25. An oxycodone prodrug of claim 16 having the structure



r= 10-1000

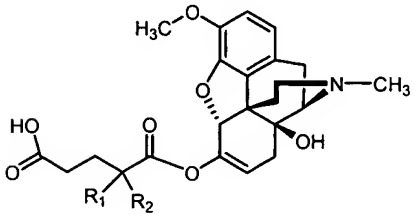
or a pharmaceutically acceptable salt therof.

26. An oxycodone prodrug having the structure



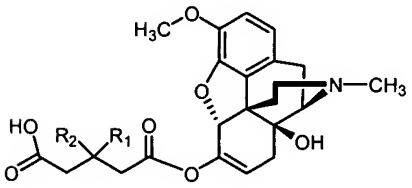
or a pharmaceutically acceptable salt thereof.

27. An oxycodone prodrug of claim 16 having the following structure



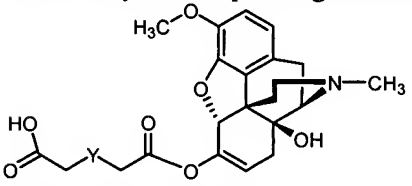
or a pharmaceutically acceptable salt thereof.

28. An oxycodone prodrug ofclaim 16 having the following structure



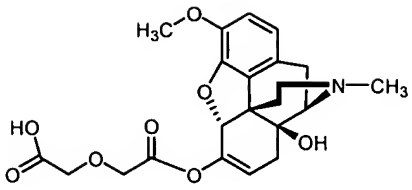
or a pharmaceutically acceptable salt thereof.

29. An oxycodone prodrug of claim 16 having the following structure



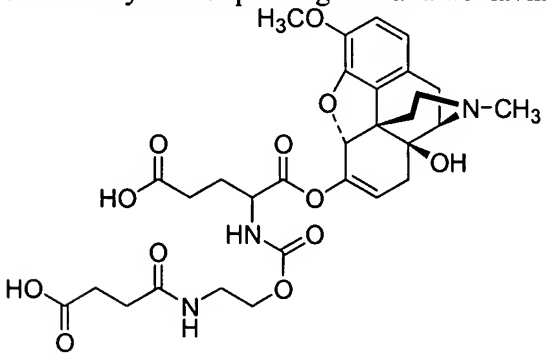
or a pharmaceutically acceptable salt thereof

30. An oxycodone prodrug of claim 16 having the following structure



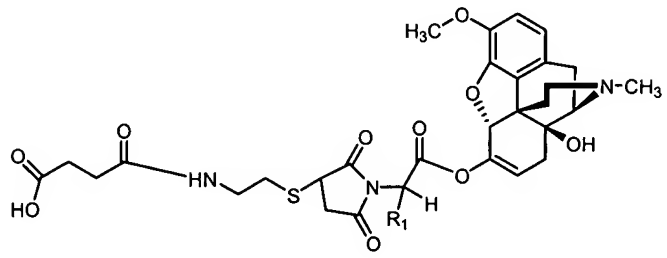
or a pharmaceutically acceptable salt thereof.

31. An oxycodone prodrug of claim 16 having the following structure



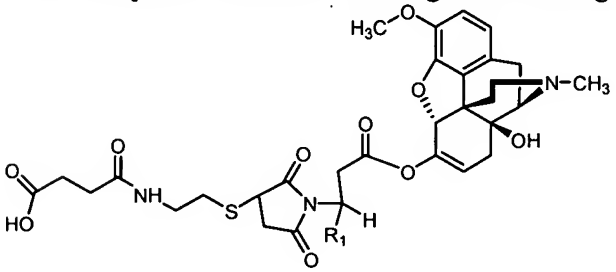
or a pharmaceutically acceptable salt thereof.

32. A compound of claim 16 having the following structure



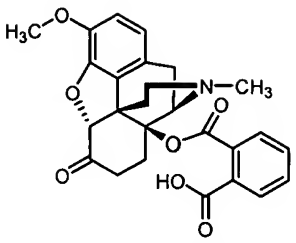
or a pharmaceutically acceptable salt thereof.

33. A compound of claim 16 having the following structure



or a pharmaceutically acceptable salt thereof.

34. A compound of claim 15 having the following structure



or a pharmaceutically acceptable salt thereof.

35. A Compound of claim 3 containing one or more carboxylic ester linkages wherein the acyl portion of the ester linkage to the drug is derived from a polymeric carboxylic acid such as polyacrylic acid or copolymer thereof or polymethacrylic acid or copolymer thereof or poly(ethylene glyocol) carboxymethyl ether or copolymer thereof or carboxymethyl cellulose.

36. An enol ester or phenyl ester prodrug of an opioid agonist, mixed agonist/antagonist or antagonist drug, wherein the duration of the activity of the drug in a mammal is substantially determined by the rate of nonenzymatic conversion of prodrug to drug after administration to the mammal.

37. A formulation compromised of two or more of the compounds of this invention that that has a lower abuse potential, and/or more desirable duration of action, and/or less side effects, such as tolerance and/or bowel dysfunction than any one of the one of the compounds comprising said formulation.